

The Antarctic Sun

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Play time



Benedick (Erik Paulsrud) professes a newfound faith in marriage after being forced to confess his love for Beatrice (Jessica Manuel) in a rehearsal of the play *Much Ado About Nothing*. Director Jason Davis adapted Shakespeare's comedy of love and trickery for an Antarctic audience. It will be performed Saturday at 8:30 p.m. in the gym. Photo by Kristan Hutchison Sabbatini.

Quote of the week

"It's just a giant massage."

- Polar Sea crew member
on sleeping on icebreaker
as it crushes ice

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their water wings
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aboard a breaker
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Meet the springtail... (20 times its actual size)

Grrrrrrrrrrr!

By Beth Minneci
Sun staff

In the mountains and valleys across the McMurdo Sound, Mark Stevens hunts the continent's largest year-round land animal.

He tramps miles up rugged terrain setting traps and picking up his game. The lion of the land, however, is far from ferocious. At .05 to .06 inches long (1.3 to 1.6 mm), it is half the size of a grain of rice. And its name, the springtail, is as unthreatening as

it is small.

"It'll chew your ankle off," snapped Stevens to another scientist ribbing him recently about his tiny prey.

Penguins are marine animals, not land. So are skuas and seals. Stevens' business is bugs – the jointed little specks living under rocks – and in cer-

see **Lion page 4**

News In BRIEF

South Pole saga soon in stores everywhere

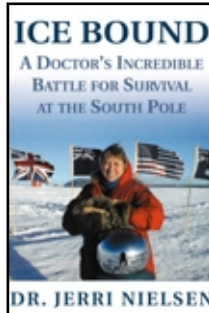
Dr. Jerri Nielsen's book about her experience fighting breast cancer while working at South Pole station will be released this week.

Nielsen discovered a lump in her breast while employed as the Pole's winter doctor in 1999. A mid-winter airdrop gave a team of scientists and technicians the supplies they needed to help Nielsen diagnose her illness and start treatment.

On Oct. 16, 1999 the 109th Airlift Wing of the New York Air National Guard made the earliest landing ever at Pole and flew Nielsen north.

Her book is called *Ice Bound: A Doctor's Incredible Battle for Survival at the South Pole*. Hardcover, CD and tape versions will be out on Thursday. Talk Miramax said it paid a "mid six-figure" sum for the book, magazine and movie rights to Nielsen's story, but the exact amount was not made public. According to Miramax publicist Hilary Bass, a movie on Nielsen's ordeal is currently in development.

Her publicity tour will include appearances on the television shows *Good Morning America*, *Oprah*, *The Rosie O'Donnell Show*, *Prime Time with Diane Sawyer*, programs on CNN and MSNBC, and magazine features in *Talk*, *Elle*, *Glamour* and *Reader's Digest*. ■



'Harsh continent' pay raise kicks in

The U.S. Department of Defense has increased its stipend for members of the armed forces assigned to areas with "arduous quality-of-life conditions," including Antarctica.

The Hardship Duty Pay for people working in designated locations (HDP-L) will replace the Certain Places Pay (CPP) that has been in effect since 1949. CPP, which is only available to enlisted people serving in specific places outside the U.S., currently provides \$8 to \$22.50 per month on top of regular pay.

The HDP-L will be paid to active and reserve service members in 110 countries at rates of \$50, \$100, or \$150 a month, depending on the severity of conditions in the area.

Locations in the most severe category include South Korea's DMZ, the island of Diego Garcia in the Indian Ocean, Johnston Island in the Pacific, and Antarctica. To qualify, members must be assigned to the areas for more than 30 consecutive days.

In determining the level of pay, the Pentagon considered factors such as the physical and social isolation of the post, its climate, the risk of political violence, harassment and crime, sanitation, disease, medical facilities, housing, food and recreational opportunities. ■

- Josh Landis

Getting the lead out at McMurdo Station

By Josh Landis
Sun staff

McMurdo's latest round of water testing for lead is complete, with all but three locations falling within Environmental Protection Agency standards.

The U.S. limit is 15 parts per billion (ppb). Dorm 202 showed 17.5 ppb, Southern Exposure had 33 ppb and the Berg Field Center registered 16.7

ppb. The station as a community passed the agency's requirement that 90 percent or more of all locations contain under 15 ppb.

The EPA calculates its limits based on the consumption of two liters of water per day over a lifespan of 70 years. Anyone concerned about the water in the above locations can run the tap for 90 seconds. This will flush standing water out of the pipes and introduce a lead-free supply.



McMurdo's environmental department tests for lead in all buildings twice each summer season because levels have been consistently elevated in the past. Analysis is performed at Crary Lab by the analytical group. The department also collects annual samples at the water plant for additional tests in the States for volatile organic compounds, synthetic organic compounds, metals, coliform bacteria and other contaminants.

The results of this season's tests aren't yet available, but the most recent findings were within accepted EPA boundaries.

McMurdo gets its drinking water by reverse osmosis, which desalinates seawater from the sound. The process involves heating the water to 37 F (3 C) and passing it through numerous stages of filtration. The final reverse osmosis screen is so fine it excludes molecules of salt and other dissolved contaminants. In addition, the water is treated with chlorine and other chemicals after it's been desalinated.

Water produced by reverse osmosis is very pure and prone to leach metals such as lead out of the solder that was used to connect pipes when the buildings were built. Previously elevated lead levels have been reduced primarily by altering the chemistry of the station's water. The addition of natural minerals balances the chemistry and makes the water less corrosive.

In 1996, water from the first floor of building 155 had lead levels of 395 ppb. This year the level is zero. At that time the station's average was 30 ppb. Today it is 3.7 ppb.

"We determined it's a good idea to monitor lead content at buildings on station because we haven't gotten to the point where every building is below 15 ppb all the time," said environmental technician Dan Evans. But he added that lead levels are dropping each year, and for the last several sampling sessions McMurdo as a community has been in full compliance with the Safe Drinking Water Act. ■

Employees give Raytheon, NSF earful

By Josh Landis
Sun staff

Two of the top managers in the U.S. Antarctic Program got a crash course on what it's like to live and work on the Ice from the people who know it best. Erick Chiang, the head of polar research support for the National Science Foundation and Tom Yelvington, president and program manager of Raytheon Polar Services Company spent the last two weeks on a whirlwind tour visiting USAP work centers.

They said they wanted to learn about the most pressing issues for people here, one-on-one. After 20 meetings averaging about two hours each, Chiang and Yelvington are sorting out the hundreds of questions and comments.

"It was a golden opportunity to voice your opinion," said FEMC foreman Richard Perales. "When you have two of the top people on the ice (listening), it adds a lot of validity."

A top concern of USAP participants was whether they were getting adequate pay for the work they do here.

"That was a common theme for a lot of people," said Yelvington. In response, Yelvington said Raytheon

will hire a third-party consultant to evaluate the pay scale here. The independent finding won't necessarily translate into a change in salaries, he said, but will give Raytheon a better idea of whether the wages are appropriate.

"We hope people will feel what they're making is fair," Yelvington said.

Another common theme was quality of life and the ability to experience Antarctica outside of McMurdo. A major draw of the USAP is the idea of being able to see the continent. Many people, however, rarely get off-station. Chiang and Yelvington say increasing opportunities for people to get out of town is a goal, and could eventually be performance-based, rather than governed by a "random" lottery system.

Other issues involved the housing policy, equipment and materials, workspace allotment and long-range planning. Chiang and Yelvington are trying to boil down more than 20 pages of notes and comments into concrete plans. Initial approaches include:

- Offering contracts for the next summer season at the end of the current season to eliminate uncertainty workers might have about their future with the program and cut recruiting costs for

positions that are filled.

- Suspending plans to create a new smoking lounge in dorm 208. There wasn't a clear consensus the community wants another such space, they said.

- Looking at whether certain work centers should be provided with specialized cold-weather gear.

- Bringing some employees to Denver earlier so they can have more planning time before deployment. This would apply particularly to field managers and supervisors.

For the most part, Antarctic workers say the meetings were a good idea, and Chiang and Yelvington seemed receptive.

"It was good to be able to get things off your chest and talk about how they could be better," said plumber Ron Richen. "Now we just have to see what happens."

In the end, Chiang and Yelvington said they want to figure out how to make the program more efficient and keep employees coming back season after season, so on-the-job experience isn't lost.

"We've heard it's not hard to get people down here," said Chiang. "It's getting them back for a second or third season and retaining their experience that's a challenge." ■

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Web address: www.polar.org/antsun

the week in weather

around Antarctica

McMurdo Station

High: 30F/-1C
Low: 10F/-12C
Windchill: -17F/-27C
Wind: 25 mph/22 kph

Palmer Station

High: 46F/8C
Low: 28F/-2C
Avg. temp: 38F/3C
Wind: 35mph/ 56kph

South Pole Station

High: -15F/-26C
Low: -25F/-31C
Avg. temp: -20F/-29C
Wind: 20 mph/17 kph

around the world

Saturday's numbers

Staten Island, N.Y.

High: 39F/4C
Low: 23F/-5C

Long Beach, Calif.

High: 59F/15C
Low: 44F/7C

Palm Beach, Fla.

High: 69F/21C
Low: 56F/13C

Casablanca, Morocco

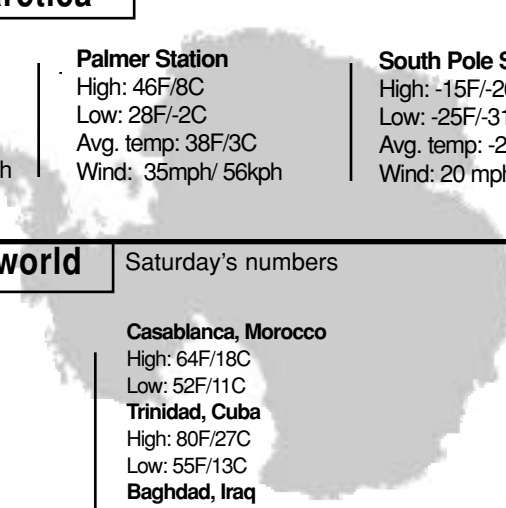
High: 64F/18C
Low: 52F/11C

Trinidad, Cuba

High: 80F/27C
Low: 55F/13C

Baghdad, Iraq

High: 70F/21C
Low: 36F/2C



Lion

from page 1

tain parts of Antarctica he is unchallenged by others in his endeavor. With 6,000 species, the springtail is one of the most widely distributed insects in the world, but for the last four decades has been virtually unstudied in the south Victoria Ranges of Antarctica.

In three seasons Stevens, who is a doctoral student in New Zealand, along with his supervisor, Ian Hogg, have unearthed more information about the springtail's presence around here than any scientists since the 1960s. They're finding that the bugs are getting around in the mountains and on Ross Island.

An ancient animal from before the ice ages, the small springtail is a survivor in a big way.

Most scientists believe that at least 50 million years ago Antarctica was much warmer. Joined with continents close to the equator, it was covered with forests in which a wide range of animals lived.

Eventually, the continents separated and Antarctica moved south. The climate became cold and ice-covered. All but a few animals were wiped out. The handful that did survive was thought to have lived on mountaintops that were never completely covered in ice. In the last 30,000 years the planet has been coming out of an ice age, exposing survivors to habitats that were not available to them during the glacial period.

Hence, the springtail's distribution, which appears to be spreading compared to what is suspected 30,000 years ago and what was recorded a few decades ago. To illustrate, Stevens points to an area north of the Dry Valleys. On a peak protruding through glacial ice about 100 miles across the sound, three species that have not been found together anywhere else live in the same spot on Mt. Suess.

"I'm thinking that this could be one of the few spots they survived the ice age," Stevens said. From there, the insects probably migrated throughout the valleys and to Ross Island.

On Ross Island, there is at least one place where springtails lived until recently – Hut Point. But humans trampling on soils in that region wiped out almost all signs of life. In less-traversed areas, however, such as capes Royds, Evans, Bird and Crozier, the springtail is found.

Fairly common in parts of Antarctica, springtails live under flat-bottomed rocks in moist areas near glaciers, where the soil is enriched with nutrients.

"As soon as you go away from the glacial streams you don't find them," he said, "so there must be moisture and nutrients provided by the glacier. In the right spot you find lots and lots of them."

Stevens is finding many, but he's not tripping over them. During the last two summers and since November he has been vigorously pursuing the bugs. Each discovery provokes new questions, prompting Stevens to go back up the mountains and through the valleys with more

traps. In the last two months, at least 5,000 springtails have been under his microscope.

"There's just so many fascinating, unanswered things going on with them," Stevens said.

Stevens' work expands on studies done 40 years ago by Keith Wise, also of New Zealand, who was part of the British Antarctic Expeditions in the 1960s. Wise surveyed the lowest valley and mountain areas by dogsled and toboggan.

Another kiwi scientist, Brent Sinclair, recently did some work with springtails here. Sinclair found, like most before him, that they produce antifreeze during winter that prevents their body fluids from freezing.

Most of Antarctica's permanent animal residents are midges, mites and nematodes, which are worms, that live in soils.

By noting the springtail's habitat, Stevens is in a way, making charts for unexplored new territory, said Diane Wall, a leading U.S. soil ecologist who studies nematodes in the Dry Valleys. "In most of the Dry Valleys areas there aren't any arthropods," Wall said. "He's kind of mapping where their high productivity areas are."

.....▶

many more times its actual size

His tenacious stalking of the animal is paying off.

"I found them further out than they've ever been found," he said.

An Australia native, Stevens, 31, moved to New Zealand on a doctoral scholarship at Waikato University in Hamilton. His career chasing insects started with bee studies years ago.

"It was interesting at the time," he said.

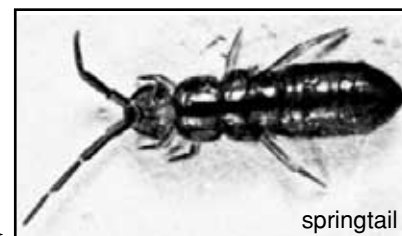
He came to the Ice with the Antarctica New Zealand program and the university to study springtails and other arthropods. He works with midges, too, but is most excited about springtails. ■

Three times a week Mark Stevens climbed the highest ridges in Taylor Valley this summer to peer into jars and wind socks he used

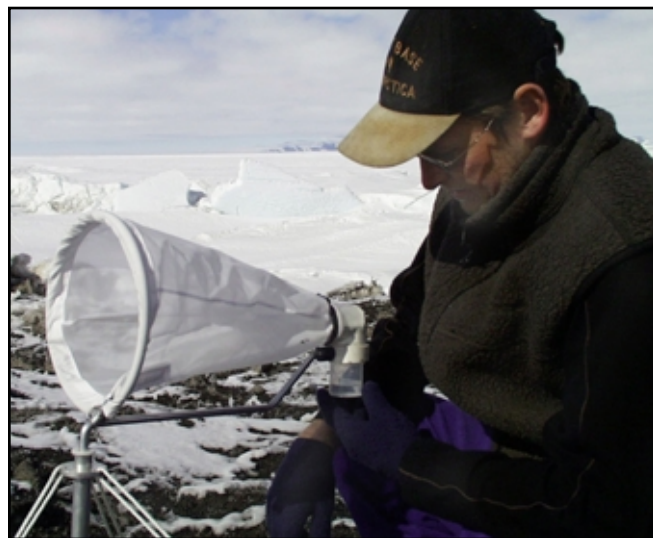
as traps to catch springtails. The jars, called pitfall traps, are placed on the ground where the springtail marches in and becomes stuck to a substance on the bottom. Here, Stevens is with the wind sock, his own creation. Set up on a short tripod, the sock is a net that swings to face the wind. Anything that blows into it ends up in a jar at its tip.

"There's just so many fascinating, unanswered things going on with them."

- Mark Stevens,
ecologist



springtail



On tour in Antarctica

Cruises cost \$9,950 to \$19,750 a person, plus airfare to Tasmania

By Josh Landis
Sun staff

First came the explorers, next the military, then the scientists. Now the tourists are upon Antarctica. Earlier this week the cruise ship *Kapitan Khlebnikov* arrived in the McMurdo Sound with the first of hundreds of visitors that will visit Ross Island this summer.

About 90 passengers traveled by helicopter from the converted Russian icebreaker to the edge of McMurdo Station. Volunteers gave tours of Cray Lab, Scott's hut and other locations.

The tourists' reactions varied along with their motivation for coming to Antarctica.

"It was a great big high to see the penguins, and killer whales, too," said Frank Robinson, a retired doctor from southern California who now lives in Italy.

An American named Jeff Budd signed up for the cruise to further his goal of visiting the deepest valleys in the world. He checked Africa, Europe and Asia off his list, and decided to go for Antarctica next.

"I'm not a cruiser," Budd said, referring to the frequent meals and confining nature of a trip aboard an ocean liner. "But this was the only realistic way for me to get here."

Low visibility and overcast skies cast doubt on whether helicopter flights into the valley would be possible, but Budd said he was hopeful.

The *Khlebnikov's* passenger profiles were as eclectic as its destination was exotic. Off the top of her head, an Australian named Ruth Pyle listed credentials including a geologist, a glaciologist, an ornithologist, an astronomer, two PhD students, an expert on Antarctic history and three children. She said numerous nationalities were represented and most of the people on board had been to the Ice before.

Any traveler that makes it this far south probably has a strong
see Tourism on page 9



Left: Seven-year-old Glenn Keough and his mother, Rosemarie, talk to Rocco DiCesare, a McMurdo fireman. Above: A Russian Mil-2 helicopter operating off the *Kapitan Khlebnikov* ferries tourists to McMurdo Station.

A child's outlook on the continent, McMurdo Station

By Kristan Hutchison Sabbatini
Sun staff

Tourists often take pictures of locals, but locals were taking pictures of three tourists in McMurdo this week.

"Oh, that looks too short to be in Antarctica," said Miguel Vargas when he spotted 7-year-old Glenn Keough in the hallway. "What is that?"

Glenn was one of three children visiting Antarctica aboard the Russian icebreak-

er *Kapitan Khlebnikov*. All under four feet tall, they drew stares from McMurdoites as they toured the station Tuesday.

"You're the first kid we've seen in a long time," Tobias Schunck said to Glenn. "I wish I would have come to Antarctica when I was your age."

Though he's young, Glenn is an old hand at traveling. His parents, Pat and
see Kids on page 9

Highway ¹ _{one}

Where on McMurdo Station would you take a tourist?



"Follow the ridge line up from Hut Point. There's a meltpool. Sometimes there's algae and moss. It's a pretty little spot."
Charlie Blackmer
welder



"The sausage dump. It's historic. It's like a time capsule."
Erik Paulsrud
general assistant



"Observation Hill. You can see it all from there, Willy Field, Pegasus, the whole station."
Kevin Stephens
fire protection

POLAR PLUNGE

penguin style



Left, a penguin digs its beak into the ice, pulling itself out of the water. Ten growing emperors live at the penguin pool in the sea ice five miles from town. The pool is 50 feet long and three feet deep. The young penguins started swimming late last month, at about four months old.

"We've looked at adults, we've looked at chicks, but this is a chance to look (at the age in) between."

- Robert van Dam

By Kristan Hutchison Sabbatini
Sun staff

At a swim camp on the sea ice, researchers are trying to transform juvenile penguins from 35-pound weaklings to world-class swimmers in just six weeks.

The emperors preen and pose beside a pool of green water carved into the sea ice. When they finally dive in and swim 50 feet to the other end, the scientists take note. A month ago these young birds couldn't even go in the water.

When emperor penguin chicks are born in August they have almost no muscle. What muscle they do have is weak and inefficient, with only a half-percent myoglobin. Myoglobin is a protein which stores and transports oxygen in the muscle, helping penguins stay under water for five to 10 minutes at a time. Adult penguins are at least one-quarter muscles, and the muscle fibers are about six percent myoglobin.

Normally the "teen" penguins buff up far from the sight of curious scientists.

"Chicks of this age you never get to see because they're out at sea," said Robert van Dam, head swim coach at the three-person, 10-penguin camp. "We've looked at adults,

see next page

from previous page

we've looked at chicks, but this is a chance to look in between."

Led by Paul Ponganis, the scientists are trying to see how scrawny chicks grow up to be barrel-chested swimmers. In December the researchers picked 10 chicks from about 20,000 young penguins left at Cape Washington by their parents. Penguin parents abandon their chicks after four months of care and feeding, swimming off in search of food to prepare themselves for the coming winter. Left alone on the ice, the teen penguins face a swim-or-die future. As they grow hungrier and thinner, instinct drives them to jump in the water and forage fish for food.

"We selected 10 birds which were kind of borderline whether they'd make it or not," van Dam said. "They're mostly feather and guts."

"And insatiable appetites," added Torre Knowler, who works with van Dam and Monica Bustamante at the camp.

On Dec. 13 the adolescent penguins rode in a Twin Otter plane from Cape Washington to a swim camp set up five miles from McMurdo.

Being a teen is tough for any species. The penguins arrived at the pool with the downy gray feathers of chickhood. Over the last few weeks they lost it slowly, for a while sporting hairdos punks would envy.

The chicks couldn't go into the water until adult feathers replaced the down. The sleek, black and white feathers repel water, allowing penguins to glide without getting wet. If they went in the water with the down they'd come out sopping wet.

But having feathers doesn't make them adults any more than getting a driver's license does. The first to dive in the water was the smallest penguin, Mapachito, Spanish for little raccoon. He jumped in Christmas Day.

"It was a totally amazing Christmas," said Knowler. "The next day, eight went in."

When the young birds first went in the water they floundered about, splashing weak wings as they tried to figure out how to swim.

"They still do a lot of dog paddling," Knowler said.

The penguins' wings were floppy before they started swimming. Now their wings are beginning to firm into flippers.

"They're still trying to get their wings in shape, so sometimes they'll just stand up and flap, flap, flap," said Knowler. "We call it calisthenics."

The teen penguins also had trouble exiting the pool. Adult penguins swim fast and shoot up to 6 feet out of the water before landing on their bellies on the ice. The teens weren't strong enough, and when they did manage to pop up, they often misjudged where the edge was.

"The first few times you'd see one jumping out, they'd be in the middle of the pool. Whoops," said Knowler.

Now the penguins go for short swims several times a day, but each time they go through the same process.

"Every morning it's like the first day," Knowler said. "They all crowd around the edge, but one has to go first."

Hesitation is a survival instinct. Penguins are most vulnerable when they first dive in the water. A leopard seal could be waiting to devour them, so the birds let someone else go first, to test the water. If it survives the rest jump in together, hoping there is safety in numbers. Once in the water and swimming, the penguins can outmaneuver leopard seals.

"The first few times you'd see one jumping out, they'd be in the middle of the pool. Whoops."

*- Torre Knowler,
on penguins shooting out of water
and missing the ice*

To coach the penguins, the researchers put boards over the middle of the pool, forcing them to swim farther underwater. They also released live fish in the water, which the penguins quickly learned to catch and eat.

"They're taking longer and longer runs," Knowler said. "In the lap pool they can go all the way down in one breath."

At the end of January the researchers will measure the level of myoglobin in the penguin's muscle. Molecular biologist Tim Welch will also analyze the samples in the Crary Lab to study what controls myoglobin production, a finding that could someday be applied to humans who have myoglobin in much lower levels.


After the sample is taken at the end of the month, the teen penguins will be flown once more to the sea ice edge where they will be released. Six of them will carry hand-sized transmitters glued to their backs. The signal from the transmitters will go via satellite to an e-mail account at Scripps Institution of Oceanography.

Researchers tried tracking teen penguins once before. In the month before the batteries died, the penguins went beyond the Antarctic Circle. This time researchers hope the batteries and the transmitters will last a full year.

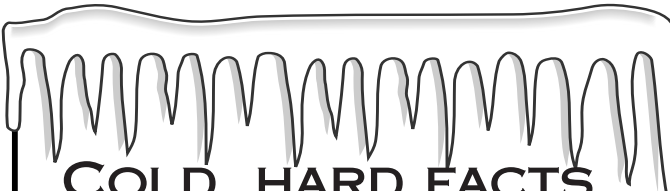
"It would be really neat to see them go through a whole year and change of season," Knowler said.

Her response is partly scientific and partly maternal, wanting to keep an eye on the youngsters now that they've learned to swim. ■

our Antarctic week

<p>14</p> <p><i>Scott's Hut Race, noon, starts at Chapel</i></p>	<p>14</p> <p><i>"Forgotten Heroes of the Heroic Age," by Donald Manahan, 8:15 p.m., galley</i></p>	<p>15</p> <p><i>Galapagos Islands slide show by Dave Carpenter, 8 p.m., galley</i></p>
<p>16</p> <p><i>Movie "Endless Summer," 8 p.m., Coffee House</i></p>		<p>17</p> <p><i>Beach Blanket Birthday Bingo with caller Chris Hush, 8 p.m., Gallagher's</i></p>
<p>19</p> <p><i>Beachball volleyball, 8 p.m., Gallagher's</i></p>	<p>20</p> <p><i>Much Ado About Nothing, play, 8:30 p.m., gym</i></p>	<p>20</p> <p><i>Skirt Party, 8 p.m., Scott Base</i></p>

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COLD, HARD FACTS


Polar Sea


- The *Polar Sea* alternates north and south polar trips with the *Polar Star*, its sister ship. Between trips, each ship is docked in Seattle about 14 months for repairs.
- The 13,000-ton ship breaks ice by ramming into it or gliding over the top of it, where gravity pulls the ship through the ice. The ship's wide hull rolls the angular ice chunks away from its sides.
- The propeller blades are 16 feet across and made of stainless steel.
- The *Polar Sea* is equipped with six electric diesel engines and three gas turbines that power the propellers. The turbines are what Boeing used in its original 747 airplane. Each produces 25,000 horsepower and guzzles 1,500 gallons of fuel an hour.
- About one-third of the Sea's 140-person crew works in some way with the five engine and engine control rooms.
- Unlike a typical boat that moves backward by reversing its motor propellers, the icebreaker moves backward by changing the pitch of its rudder.
- On the way here, 14 flight crew members shuttled scientists to points in Antarctica. Since late December, it has worked side-by-side with the National Science Foundation's contracted helicopter company, Petroleum Helicopters Inc. The crew will leave in February.

Ross Island Chronicles


By Chico


NEXT!!!







GERONIMO!!!







Something tells me it's going to be a long day.



Tourism from page 5

affinity for Antarctica and a large disposable income. The prices of the *Khlebnikov's* latest cruise ranged from \$9,950 to \$19,750 per person, not including airfare to Hobart, Tasmania.

The first of six cruises expected this summer, the *Khlebnikov* carried 98 passengers south from Hobart on Dec. 28, along with a Russian crew of 61 and an expedition staff of 19. After leaving Ross Island it headed to the Bay of Whales.

On the eastern side of the Ross Ice Shelf, the ship set a record by reaching 78 degrees, 37 minutes south latitude in the area where iceberg B-15 broke off in March 2000. From there the *Khlebnikov* will head north to several islands before docking in Bluff, New Zealand.

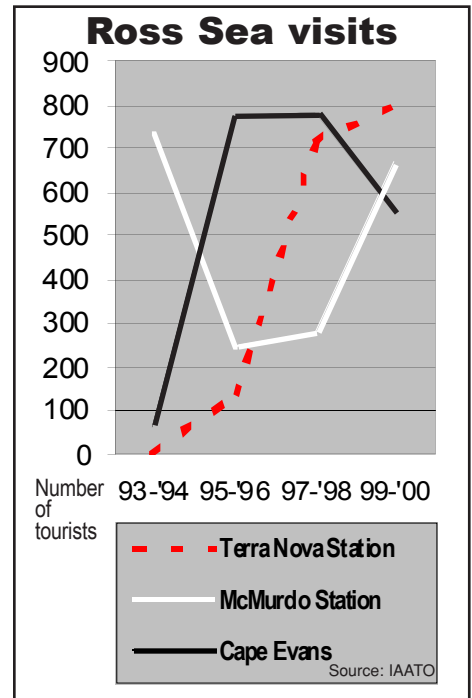
Tourism in Antarctica is on the rise. According to the International Association of Antarctica Tour Operators (IAATO), the 1999-2000 austral summer brought 14,762 visitors to

the Ice. That's an increase from 6,704 just seven years earlier, but was probably higher than normal because of "millennium celebrations." This year IAATO is expecting just over 13,000 tourists.

The majority, by far, go to the peninsular region on cruise ships. On this side of the continent the most landings are made at Terra Nova Bay, followed by McMurdo Station, then Cape Evans (see graph). Accessibility to McMurdo depends upon sea ice conditions, tour ship itineraries and other factors.

The face of Antarctic travel has changed over the years, but its allure hasn't. The continent's untamed character and its pristine environment draw people from all around the world, a lot of them driven by the same hunger that pushed the earliest explorers.

"I've got to see every country and territory in the world," said Robinson. "The world is so fantastic and there's so much to learn." ■



Kids from page 5

Rosemarie, are professional photographers from British Columbia, Canada. They take him all over the world as they work.

Antarctica is the best, and coldest, trip yet, Glenn said. The journal he writes and draws in every day is full of experiences few people ever have, from climbing to the top of an iceberg at Cape Hallett to going on a treasure hunt for penguin feathers at Cape Adare. The journal entry for Tuesday at McMurdo Station will probably start with waiting outside Scott's Discovery Hut.

"It would be a lot more fun if there was more snow and the ice were strong so I could go tobogganing," Glenn said, kicking at a patch of packed snow.

While his parents took pictures, Glenn caught snowflakes in his mouth, examined the preserved seal outside Scott's Hut and asked questions.

"Why's it look like dirt? Is it fossilized?"

Everywhere the tour group went, Glenn drew attention. McMurdo residents turned to watch the short person go by. In the Crary Lab, Hudi Brenman gave Glenn an Erebus crystal. Seconds later, Glenn and the other tourists watched Erebus spew lava and smoke on a screen connected to a camera broadcasting from the volcano.

At the Coffee House, Glenn got a patch, pin and stamp in his passport, then stood politely as McMurdo residents took his photograph.

Maria and Peter Eriksson, ages 11 and six, had a similar reception. Not only are there no children living in Antarctica, they seldom visit. Bente Eriksson had to convince the cruise company to let her bring her children along on the three-week voyage.

"The ship policy is they really don't take children," Eriksson said. "They made an exception because both of the kids are used to boats and it has not been a problem."

Maria said her gym teacher in Helsinki, Finland, didn't believe she was really going to Antarctica. Nor does Maria sometimes.

"It's really fun, just incredible," Maria said. "I can't even think I'm here." ■

In Terra Nova Maria sat down near the emperor penguin chicks and one walked to within a foot of her.

"Its down was like rabbit fur," she said.

On the boat the children work on homework, play cards or ping pong and complete quizzes and games provided by the ship's crew. The students are taking time away from school for the adventure, but Pat Keough said his son was staying ahead of his class and learning from the experience. Glenn's travel journal is partly a school assignment.

The other tourists said they don't mind sharing their vacation with the children, who are all well-behaved.

"It's a great experience for them," Neal said. "The only trouble is if you get this addiction too young, it gets to be quite expensive." ■



Seven-year-old Glenn Keough watches Antarctic cod with two other tourists in the Crary Lab aquarium. Keough was one of three children and 91 adults who toured the lab and other McMurdo sites Tuesday. Photos by Kristan Hutchison Sabbatini.

ONBOARD *the* POLAR SEA



Photos by Brian Smith and Matthew Clark.

“Most of my friends in the Coast Guard think I’m crazy for going out (to sea) six months.”

*- Ensign Heather Paradise,
U.S. Coast Guard*

Seattle to
McMurdo Station
is a bumpy,
busy ride

By Beth Minneci
Sun staff

On the bridge of an icebreaker tearing up ice sheets six feet thick, the ship and its contents rattle repeatedly. But through the panoramic windshield 58 feet above the ice blanket, the sunlight and mountainous scenery somehow soften the ride.

It's almost serene. It's kind of deceiving.

Five decks below, in the windowless, metal engine rooms it is a different world. The ship's vibrations knock the boat around, kicking off equipment failures and false alarms. The people here are often harried, working with an emergency room staff's sense of urgency.

"These are probably the hardest working folks here because they never know when something is going to break," said Ensign Chris Burrus, a deck watch officer.

Last Sunday, a trip to Marble Point was stalled right away when an o-ring on a steering pump broke, sending a dozen people clamoring to fix it, and to mop up 25 gallons of oil spewed on the floor.

The ship sat in front of McMurdo Station for two hours with no steering ability. Once the steering was up, lights and bells in the control room signaled more problems. For the next several hours the ship's engines failed continually.

"There's hardly ever a dull moment here," said assistant engineer Lt. j.g. Doug Petrusa.

Episodes like these are not surprises on the *Polar Sea* or the *Polar Star*, the U.S. Coast Guard's icebreakers designed in the late 1960s specifically to cut ice channels for supply ships supporting the U.S. Antarctic Program. The Polar-class ships also deliver an annual fuel supply to Marble Point, a helicopter fueling station across McMurdo Sound.

Breaking ice is what the ships do well. Their blunt hull shape and three turbine jet engines can

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Photo by Fernando Jorge.

**“Most people wake up when the vibrations stop.
They think that something is wrong.”**

-Lt. j.g. Joe Brown

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thunder the boats through ice up to 21 feet thick.

But there is a tradeoff.

Breaking ice beats up the ships. They tremble and roar. Violent shaking jiggles loose bolts, seals and circuits. Some of the equipment is original pieces, and rickety by now.

"This stuff I work on is older than me," said 24-year-old Kristen Kiehl, an electrician, pointing to a blinking switchboard in the control room. "It's high maintenance."

Each summer, over roughly two months, one of the Coast Guard's Polar class icebreakers makes its way about 11,000 miles from Seattle to Australia, then Antarctica. This year's trek started Nov. 4. On the way, in addition to machine malfunctions, the voyage pitched the crew a series of other challenges.

The first few days out of Seattle were bumpy. Five weeks later, the Southern Ocean rolled the *Polar Sea* for three days, tilting it as much as 40 degrees and inducing an epidemic of sea sickness.

"It's like an amusement park ride that won't end, you can't get off," said Chief Warrant Officer Pat Calpin, describing the ordeal.

On top of that, heavy snowfall made the sea

ice soft and its surface abrasive. Smooth, brittle ice breaks best, splitting when hit. Normally, the icebreaker will skid over ice. Gravity will pull the heavy ship through it. But this year's snow threw resistance at the ship's attempts to gain position over the ice. Ramming at the soft ice didn't work well either. "This stuff is like goo," Cmdr. Stephen Wheeler said. "You hit it and it bends."

When the ship is breaking ice, the rumbles onboard are like little earthquakes, sometimes accompanied by loud blows. Ping, pang, bang means a piece of ice probably hit a propeller, which can break a blade. Then comes a swooshing sound, with more thundering vibrations, and a screeching scrub along the ship's side. It's like riding through the world's loudest, roughest car wash. For some, sleeping onboard is a problem. But for most, it's not.

"Most people wake up when the vibrations stop," said Lt. j.g. Joe Brown. "They think that something is wrong."

Despite the conditions, the majority of the *Polar Sea's* 140-person crew eagerly snatched up the chance to work on this icebreaker for half a year. The ship is scheduled to return to Seattle mid-May.

Ensign Heather Paradise, 23, an officer in one of the engineering department's four divisions, listed Antarctica as No. 1 on her "dream sheet," a wish list of assignments.

"It's the biggest engineering plant we have and I'm young and unattached and I get to see the world for free," Paradise said. But she's scheduled for flight school next summer. "I like being underway and seeing everything, but it gets kind of old. Most of my friends in the Coast Guard think I'm crazy for going out six months."

Traveling and setting a foundation for a career means forfeiting community roots in the States for a while. But most in the crew are in the late-twenties or younger, and single, and don't find this a big sacrifice.

Kiehl of Stevens Point, Wis., doesn't miss her hometown. "I come from a small town where nobody ever leaves," she said. She visits friends once a year, telling them stories about the world while they buy her beers.

Twenty-eight-year-old telephone technician Bobby Allen's wife and two young children are in Texas. "She's living with her mom. Her dad's not far away." They can talk on a telephone for up to 30 minutes a day. And of course, there is e-mail. Allen is on the *Polar Sea* because his wife, Kathy, supported his desire to go. "The way we looked at it, I get to see things I wouldn't otherwise get to see."

On the other hand, Allen is fairly sure he won't sign up with the Coast Guard again next year.

"If I were single I would definitely stay in, but being away is hard. I don't get to see my kids grow up."

Several on crew, like Paradise and Burrus, come from a Coast Guard family, so they knew what to expect.

Rekiya Sanders wanted to join the service since she was a kid "playing search and rescue" in New York. Now, at 26, she is a machinery technician working with the engineering department.

Last Sunday, Sanders was part of the group bent over a mess in an engine room, taking care of the steering snafu. After two hours dead in the water the *Polar Sea* was back in business – but only for a few minutes before the ship shut down.

The new problem was a turbine engine with a troubled history. It lost power for the umpteenth time since hitting the ice this season.

"We've been known to pull 24- and 48-hour shifts," Sanders said, but added, "I'd be bored if there wasn't always something to fix." ■

Profile



**"The greatest part
about life is it's up to you.
You just do it."**

- Lt. Kelly Larson
U.S. Coast Guard



Aviation technician Dani Keating (left), Lt. Cmdr. Sidonie Bosin (middle), and Lt. Kelly Larson in their flight positions aboard a Coast Guard helicopter. The trio is the first ever, all-female helicopter flight crew in Antarctica.

Flying through another ceiling

By Kristan Hutchison Sabbatini
Sun staff

Whump, whump, whump. The helicopter blades pounded the thin air as Dani Keating listened from the back seat. Soaring through mountain passes at 10,500 feet would normally scare her, but Keating said the calm competence of the pilots in the front seat put her at ease.

"They are the top two female pilots in the Coast Guard as far as I'm concerned," Keating said of Lt. Cmdr. Sidonie Bosin, Lt. Kelly Larson. "If I'd been flying with any other pilots I'd have been real afraid."

Keating is in the position to know. As an aviation avionics technician she has flown with hundreds of pilots. The trio is the first all-female helicopter flight crew in Antarctica and the only women in the 14-person U.S. Coast Guard aviation team in Antarctica this year.

Female pilots and crewmen are not common in the Coast Guard, but they're becoming less unusual.

"You see such a greater mix of genders and races than it used to be," Bosin said. "I think being a humanitarian service, it attracts people the Department of Defense might not."

Piloting helicopters in Antarctica is challenging, Larson and Bosin said. The white snow and white clouds blend, blurring the horizon. Sometimes pilots can't tell which way is up or where the ground is. In Adelie Land, Larson landed in a void, where ice blended seamlessly into the sky.

"The only thing I think is scary is the white on white," Larson said. "As a pilot, it's good to have a horizon."

All Coast Guard pilots are able to fly

using instruments alone, but some of the instruments don't work in Antarctica because it is too near the magnetic south pole.

"We have this amazing helicopter, but the electronics and the things it can do are all magnetic, so there goes 90 percent of all the gee whizz," Larson said.

The beauty of the continent more than makes up for the treacherous flying, the women agreed. Each day their favorite places change as they see something new.

"If you'd asked me day one I would have said it's the Adelie penguins," Bosin said. "If you asked me day two I would have said the Mertz Glacier."

Larson liked flying to Cape Hallett, which she described as looking like the Andes, Alps and Himalayas combined. There wasn't a breath of wind that day, she said, and the complete silence was welcome after the noisy boat ride down on the Coast Guard ice-breaker *Polar Sea*.

On the crossing from Australia to Antarctica the ship tossed about so much Larson strapped herself to the bunk. Anything loose flew around the room. Keating lay sick in bed as Jolly Ranchers and even the shower knob clattered past.

"You kind of wait until it comes to you and grab it," Bosin said.

Confined to a ship, as they were on the *Polar Sea*, the crew has to get along. The women joked with the men, playing Twister on Christmas and performing in a no-talent night.

Despite the comradeship, the women said they couldn't really make friends with any of the men on the *Polar Sea*. Just spending time alone would lead to rumors of romance, which is strictly prohibited by the Coast

Guard. Though the policy limits their social lives, it is a good one, the women said.

"It's there to protect junior people," Keating said. "I'm glad they have it. You can feel more comfortable as a woman working with men."

At 28, Keating is the youngest of the three. She started out as a swim coach and lifeguard, then moved into aviation. Bosin and Larson have both been in the Coast Guard for 16 years. For Bosin the Coast Guard was an affordable way to learn to fly.

When Larson enlisted she expected to run boats in the Puget Sound. Then she had a chance to fly in a helicopter.

"I said, this is it," said Larson, who became a rescue swimmer and then a pilot. "You can see everything, close up, low, fast."

Now Larson is looking forward to retiring at 38 and becoming a golf instructor.

Keating says she wants to settle down too, though she recently re-enlisted for a third four-year tour with the Coast Guard.

"All I've ever wanted to do since I was 18 was get married and settle down," Keating said. "I just want to stay home and make dinner."

Finding someone to make dinner for is tricky, the women admitted. Keating is single, Bosin is married with stepchildren, and Larson is divorced.

"We've had this conversation many times," Larson said. "It's harder for a woman in the military to find a civilian willing to uproot."

Despite the sacrifices, she enjoys the transient life she chose.

"The more you move around, the more you see things, the more you realize anything is possible," Larson said. "The greatest part about life is it's up to you. You just do it."

As for flying with the boys, it's no big deal.

"We're so used to it at this point," Bosin said.

Keating picked up the thought. "We're just one of the guys."

Then Larson corrected her. "No, they're just one of the girls." ■